The proposed 16-channel digitizer with data system shall meet or exceed the following minimum requirements:

Item	Description	Parameters	Values
1	Waveform digitizer with data system		
		A/D Sampling Resolution	8 bits
		Sampling Rates	≥1.5 GS/s per channel
		Available on-board memory	>16 M samples, segmented acquisition capability, up to 40k samples per segment
		# of A/D Channels	2 (Phase 1) expandable to 16 (Phase 2)
		Connector	SMA
		Impedance	50 Ω
		Coupling	AC or DC
		Effective number of bits (ENOB)	>6.5
		DC Coupled Bandwidth	DC to ≥1.0 GHz
		AC Coupled Bandwidth	20 kHz to ≥1.0 GHz
		Triggering	10 kHz to 20 kHz external trigger rate
		Source	CH 1 or 2, EXT or manual
		Onboard Processing	Xilinx Virtex-5 or equivalent
			Data reduction capability - transfer fixed number of samples before and after peak signal level and/or user-define threshold in each acquisition segment
		Timing	Clock synchronization capability between boards
			Segment time stamps
			Internal and External selectable sample clock source with 10 MHz reference input
		Bus	PCI Express or equivalent
			>500 MB/s sustained data transfer rate
	DATA SYSTEM	Internal Storage (RAID)	4 TB
		External Storage (RAID)	> 4 TB (Hot Swappable)
		Data transfer rate	>500 MB/s - sustained write rate
		Mainframe	Quad-Core Intel or equivalent
		Other interfaces	USB, LAN Ethernet
		Internal Memory (SDRAM)	4 GB
		Operating System	Windows, Linux or VxWorks
		Physical Size	1 or 2 4U 19" Rack Mount Chassis
			Single box or PCI Express expansion chassis with PCIe cable to host
		Software	Signal Visualization and Acquisition Control
			Software Drivers
			Firmware development kit
		Timing Distribution	Clock and trigger distribution/synchronization card for waveform digitizers
		Environment	Operating temperature 0°C to 50°C